

**FREQUENTLY ASKED QUESTIONS  
AND GUIDELINES  
FOR COMPLIANCE WITH THE  
TRU ATCM**

**FOR**

**OPERATORS OF TRUs AND  
TRU GENERATOR SETS,  
AND FACILITIES WHERE TRUs  
OPERATE**



**Stationary Source Division  
Emissions Assessment Branch**

**December 7, 2005**

**GUIDELINES FOR  
In-Use Diesel-Fueled Transport Refrigeration Units (TRU)  
and TRU Generator Sets,  
and Facilities Where TRUs Operate**

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## **I. Introduction**

This document provides guidance to parties affected by the Transport Refrigeration Unit (TRU) Airborne Toxic Control Measure (ATCM) in plain English in a FAQ (Frequently Asked Questions) format. If this guidance creates conflicts in interpretation, the regulatory language of the TRU ATCM (13 CCR §2477) shall have higher legal authority. This document may be updated from time to time with or without notice.

## **II. General Overview**

At its February 2004 public hearing, the California Air Resources Board (ARB) approved the *Airborne Toxic Control Measure for Diesel-Fueled Transport Refrigeration Units and TRU Generator Sets, and Facilities Where TRUs Operate*. The TRU ATCM is designed to use a phased approach over about 15 years to reduce the diesel particulate matter (PM) emissions from in-use TRU and TRU generator set engines that operate in California. The new rule became effective December 10, 2004, and can be found in title 13, California Code of Regulations, section 2477. The rule can be downloaded at:

<http://www.arb.ca.gov/regact/trude03/trude03.htm>.

Unless otherwise specified, all references to TRUs include both TRUs and TRU generator sets.

### **1. Why is diesel PM of concern?**

In 1998, the Board identified diesel PM as a toxic air contaminant (TAC). Diesel exhaust is a complex mixture of thousands of gases and fine particles that contains more than 40 identified TACs. These include many known or suspected cancer-causing substances, such as benzene, arsenic and formaldehyde. Because of the amount of emissions to California's air and its potency, diesel PM is the number one contributor to the adverse health impacts of TACs known today. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks and premature deaths among those suffering from respiratory problems.

### **2. What is the definition of TRU?**

Transport Refrigeration Unit (TRU) means refrigeration systems powered by integral internal combustion engines designed to control the environment of temperature sensitive products that are transported in trucks, trailers, railcars, and shipping containers. TRUs may be capable of both cooling and heating.

### **3. Who is affected by the TRU ATCM?**

The TRU ATCM applies to owners and operators of diesel-fueled TRUs and TRU generator sets that operate in California, irrespective of whether they are registered in or outside the State. This includes all carriers that transport perishable goods using diesel-powered refrigeration systems on trucks, trailers, shipping containers, and railcars that operate in California. Facilities with 20 or more loading dock doors serving refrigerated areas where perishable goods are loaded or unloaded for distribution on trucks, trailers, shipping containers, or railcars that are under facility control will also be affected.

### **4. What are the basic requirements of the TRU ATCM?**

Applicable facilities will be required to submit a one-time report to ARB that provides information about the size and type of facility, and the TRU activity that occurs at the facility. This information is needed to evaluate the overall effectiveness of the regulation in reducing diesel PM concentrations near facilities where numerous TRUs operate.

The requirements for TRU operators are described in Section IV For Operators of TRUs of this guidance (page 11). TRU engines must meet in-use performance standards. Compliance with the in-use performance standards is achieved by using an engine that is certified to meet the engine certification value, installing the required level of verified diesel emission control strategy (VDECS), or using one of the alternative technologies.

Owners of TRUs based in California will be required to apply for an ARB identification number and submit an initial operator report to ARB that provides information about the TRUs they operate in California. The regulation also requires update reports and ARB identification number information to be provided as TRUs are leased, purchased, or sold. The information is needed to assist in the implementation of the ATCM. Owner/operators of non-California-based TRUs and TRU generator sets that are used in California may choose to voluntarily apply for an ARB identification number. The coded identification numbers include information that will reduce roadside inspection time.

**5. When does this regulation go into effect?**

The regulation effective date is December 10, 2004. The first significant compliance date is January 31, 2006, when facility reports are due for affected California facilities, which must also conduct recordkeeping in 2005. See Section III For Facilities Where TRUs Operate (page 3) for more information.

Applications for an ARB identification number for all California-based TRUs and TRU generator sets and the initial operator reports are due on or before the January 31, 2009, which follows the first compliance date.

TRUs and TRU generator sets that operate in California will be required to meet the in-use performance standards on a phased compliance schedule, based on the engine model year, beginning December 31, 2008. More details on operator compliance requirements and deadlines are provided below in Section IV For Operators of TRUs (page 11).

**6. Do the local air districts have a role in enforcement?**

Air districts can enforce their nuisance and opacity rules and regulations that generally apply to all emissions sources. In addition, air districts may report complaints about potential TRU ATCM violations to ARB Enforcement Division for follow-up. But, Section 39618 of the California Health and Safety Code specifically authorizes the ARB to regulate refrigerated trailers as mobile sources on a statewide basis to prevent confusion about whether they are stationary or mobile sources and to prevent inconsistent regulation by air districts. So, air districts would not be enforcing the TRU ATCM.

### **III. For Facilities Where TRUs Operate:**

#### **1. What is the definition of "Facility?"**

"Facility" means any location where TRU-equipped trucks, trailers, shipping containers or railcars are loaded or unloaded with perishable goods. A facility includes, but is not limited to, grocery distribution centers, food service distribution centers, cold storage warehouses, and certain intermodal facilities. Each business entity at a commercial development is a separate facility for the purposes of this regulation, provided the businesses are "independently owned and operated."

#### **2. Which facilities are subject to the facility reporting requirements the TRU ATCM?**

That depends. If the answer is "Yes" to all of the following questions, then the facility is subject to the regulation. If the answer is "No" to any one of these questions, then the facility is not subject to the Facility Reporting requirements of the ATCM.

- ✓ Do TRUs operate at the facility?
- ✓ Does the facility have 20 or more loading dock doors serving refrigerated areas?
- ✓ Are perishable goods loaded or unloaded for distribution on trucks, trailers, shipping containers, or railcars?
- ✓ Are any TRUs owned, leased or contracted for by the facility?
- ✓ Are any of the "TRUs under facility control?" (See below.)

#### **3. What does "TRUs under facility control" mean?**

Facility Control (of TRUs or TRU Gen Sets) means:

- a) The TRUs or TRU gen sets located at the facility that are owned or leased by the facility, its parent company, affiliate, or a subsidiary, or under contract for the purpose of providing carrier service to the facility, and
- b) The TRUs' or TRU gen sets' arrival, departure, loading, unloading, shipping and/or receiving of cargo is determined by the facility, parent company, affiliate, or subsidiary (e.g scheduled receiving, dispatched shipments).

#### **4. What recordkeeping is required by facilities?**

Affected facilities are required to keep records that substantiates the information reported in the Facility Report. These records shall be maintained and shall be compiled and made available to State inspectors upon request, for at least three (3) years. Most facilities already keep records related to items 5.a. through 5.h. (See below.) New recordkeeping systems may be necessary for reporting items 5.i. through 5.k. (See below.)

#### **5. What are the reporting requirements that apply to facilities?**

Facilities subject to the TRU ATCM (see #2, above) will be required to submit a one-time report to ARB. In addition to basic contact information for the facility's responsible official and facility location, the Facility Report must include specific information related to the size, type of facility, and TRU activity that occurs at the facility:

- a) All North American Industrial Classification System (NAICS) codes that apply to the facility,.
- b) The number of loading dock doors serving refrigerated space, as of December 31, 2005.
- c) The number of square feet of refrigerated storage space, as of December 31, 2005.
- d) The number of TRUs under facility control by model year and horsepower category, as of December 31, 2005.

- e) The number of refrigerated trucks, trailers, shipping containers, railcars, and TRU generator sets that are leased or rented as of December 31, 2005 (e.g. report the sum of the number leased and the number rented for all types).
- f) The total annual TRU engine operating hours for units under facility control – for both on-road and off-road (at facility) operations – during 2005.
- g) The average weekly number of inbound refrigerated trucks, trailers, shipping containers, and railcars delivering goods to the facility during 2005.
- h) The average weekly number of outbound refrigerated trucks, trailers, containers and railcars delivering goods from the facility during 2005.
- i) The average total number of hours per week that outbound TRU or TRU gen set engines operate while at the facility during 2005. Certain facilities may qualify for abbreviated recordkeeping protocols, as described in question number 10, below.
- j) The average total number of hours per week that inbound TRU or TRU gen set engines operate while at the facility during 2005. Certain facilities may qualify for abbreviated recordkeeping protocols, as described in question number 10, below.
- k) The number of refrigerated trailers (as defined, this includes trailer vans, shipping containers, and railcars) that are used at the facility for cold storage, the total annual number of hours of TRU engine operation associated with these refrigerated trailers, and the total annual number of hours of operation using electric standby (if used) associated with these refrigerated trailers.

**6. How do I calculate the average weekly number of refrigerated trucks, trailers, railcars, and shipping containers?**

- a) From your records, count the total number of refrigerated *inbound* deliveries for the year 2005.
- b) Divide the total annual number of *inbound* deliveries by 52 to get the average weekly number of *inbound* refrigerated trucks, trailers, railcars and shipping containers. Report this value.

Use a similar approach to calculate the average weekly number of *outbound* refrigerated trucks, trailers, railcars, and shipping containers.

**7. We don't currently track TRU engine run time at facilities, so what approaches can we use to collect this data?**

Facilities that don't currently track TRU engine run time at the facility have a number of options:

- a) Facilities may need to set up recordkeeping systems to collect this data. It could be that TRU engine hour meter readings are taken when each unit enters and leaves the facility gates. The records would include the date and indicate whether the TRU was entering or leaving the facility and whether it included refrigerated goods or not. Then, it would be relatively simple to calculate the TRU engine run time that occurred while the TRU was at the facility and when it was away from the facility. Certain facilities may qualify to use ARB-approved alternative recordkeeping and calculation procedures for tracking TRU engine run time at the facility (see # 10, below).
- b) For inbound refrigerated loads, if some drivers are not allowed to take hour meter readings due to vendor procedures, then facilities would have to get as much data as possible without pushing their outside vendors to do something that violates their procedures. If drivers don't know how to read the engine hour meter, the facility could obtain hour meter reading procedures from TRU manufacturers and provide the instructions to the driver. Hour meter readings could then be entered on this instruction sheet and returned to the facility upon leaving.
- c) Technology may also be available that could be installed on units to automatically track units using GPS and record engine run time on a data acquisition system when the units are within the "geo-fenceline" of the facility and outside the fenceline. Then, a relatively simple download of data may be possible.

- d) For those refrigerated loads where hour meter readings are not possible, facilities could log the time each inbound unit enters and leaves, then use the elapsed time in calculating averages. This alternative approach would provide the worst case assumption that these engines operate all of the time they are at the facility, but may result in an overestimate of the TRU engine run time at the facility. The facility could note the percentage of inbound refrigerated loads this error applies to in the Facility Report and also include an explanation of the facility's standard operating procedures related to TRU operation of inbound refrigerated deliveries.

**8. What recordkeeping is required for TRUs Used for Cold Storage?**

As discussed above in question 5, response k), when trucks, trailers, shipping containers or railcars are used for cold storage, the total annual number of hours of TRU engine operation associated with these refrigerated trailers, and the total annual number of hours of operation using electric standby associated with these refrigerated trailers must be reported. The recordkeeping system will have to manage the data so that these TRU operations can be reported separate from the average TRU engine operating time per inbound and outbound refrigerated loads.

- ❖ Cold storage TRU logs would include the following, as a minimum:
  - Date, time, and TRU engine hour meter readings for start-up and shut-down used to determine elapsed TRU engine operating time related to cold storage operations.
  - Electric standby time (if applicable).
  - Unit identification (e.g. TRU, trailer, truck, shipping container, or rail car I.D. number).

**9. How long can an inbound load sit in the yard before it should be counted cold storage?**

If the handling of the load in question deviates from the normal practices for inbound loads, or the use of a refrigerated trailer for temporary storage was planned, or when it wasn't planned, but the load was parked in the yard for more than 24 hours, then the use should be considered cold storage. All of the TRU engine run time from the time it came in the gate until it was unloaded and shut down should be considered cold storage, regardless of whether the trailer was parked in a "storage area" or backed up to a loading dock. None of the engine operating time should be attributed to inbound load engine operating time.

**10. What recordkeeping is required for TRU engine operating time per inbound and outbound load at the facility? (This question refers only to facility report items i. and j. of question 5, listed above.)**

For the average weekly hours of TRU engine operation at a facility for inbound and outbound refrigerated loads, most facilities will need to create new recordkeeping systems. Some facilities may need a full year of recordkeeping, but most may qualify for abbreviated alternative recordkeeping. Alternative recordkeeping and calculation procedures may be used for determining the *average TRU engine operating time per inbound and outbound refrigerated load*, provided ARB finds that the alternative procedures meet the intent of the recordkeeping requirements. The results must be representative of actual TRU operations at the facility.

The following recordkeeping protocol has been approved for determining the *average TRU engine operating time per inbound and outbound refrigerated load* for use at grocery distribution facilities, foodservice distribution facilities, and other facilities that check in and check out refrigerated loads through a gate. Please note that this protocol applies only to determining the *average TRU engine operating time per inbound and outbound refrigerated load*.

- ❖ At a minimum, TRU engine hour meter readings must be collected over two 48-hour periods:
  - One 48-hour period shall be in the summer (between June 21st and September 21st), and
  - One 48-hour period shall be in the winter (between December 21st and March 19th).
  - Other 48-hour periods may be monitored, provided they are shown to produce averages that are representative of overall operations that cover seasonal and operational variations. ARB approval is required for alternative 48-hour periods outside the periods above.
- ❖ The summer and winter TRU engine operating time data for inbound loads are to be averaged together to determine an *average TRU engine operating time at the facility per inbound load*.

- ❖ The summer and winter TRU engine operating time data for outbound loads are to be averaged together to determine an *average TRU engine operating time at the facility per outbound load*.
- ❖ TRU engine hour meter readings must be taken from all TRUs as they enter and leave the facility.
- ❖ Only TRU engine operating times from refrigerated inbound deliveries and refrigerated outbound shipments shall be included in the calculation of *average TRU engine operating time per inbound and outbound refrigerated load*. Hour meter readings taken at gate entry for inbound deliveries of dry-goods-only loads and at gate exit for outbound shipments of dry-goods-only loads (where the TRU is not used) may need to be disregarded, depending on the circumstances, to prevent erroneous inputs to the averaging calculation. See "Examples of hour meter reading cases," listed below.
- ❖ Data recording logs must include enough information to facilitate calculation of elapsed TRU engine operating time for refrigerated loads and also differentiate hours of TRU engine use for cold storage operations. Separate gate logs and cold storage TRU logs could be maintained. They would need to be compiled together by activity date to separate the use of units for cold storage from inbound and outbound refrigerated loads.
  - Gate logs would include the following data, as a minimum:
    - Date, time and hour meter reading when the TRU-equipped truck, trailer, railcar, or shipping container enters and exits facility.
    - Unit identification (e.g. TRU, trailer, truck, shipping container, or rail car I.D. number).
    - An indication of whether the reading is taken as the unit is entering or leaving the facility. This will facilitate matching up meter readings to determine elapsed TRU engine operating time.
    - An indication of whether a TRU-equipped truck, trailer, railcar, or shipping container is hauling a dry-goods-only load where the TRU is not being used. This indication would later be used to determine if the required hour meter reading should be used to calculate TRU operating time at the facility (see "Examples of hour meter reading cases," below).

Other data gathering protocols for determining the *average TRU engine operating time per inbound and outbound refrigerated load* may be reviewed by the ARB upon application. Written approval would be required for all other alternative facility recordkeeping and calculation protocols.

## 11. How do I calculate the average number of hours per week that outbound TRU engines operate at the facility?

*Average TRU engine operating time per outbound refrigerated load* would be determined based on recordkeeping, as described above.

If hour meter readings were taken throughout the year 2005, then add together all engine operating time while at the facility for outbound loads. Divide this by 52 weeks per year to get the average total number of hours per week that outbound TRU engines operate while at the facility. Report this value.

If the abbreviated alternative recordkeeping protocol described above was used, the *average TRU engine operating time per outbound load* would be applied to the total annual number of refrigerated outbound loads and then weekly averages calculated as follows:

Multiply the *average TRU engine operating time per outbound refrigerated load* by the total number of outbound loads per year and then divide by 52 weeks per year to get the average total number of hours per week that outbound TRU engines operate while at the facility. Report this value.

Example calculation:

If the average TRU engine operating time per outbound refrigerated load equals 6 hours per load and, the total number of refrigerated outbound loads per year = 10,000 loads/yr

Then, the average total number of hours per week that outbound TRU engines operate while at the facility equals:

$$(6 \text{ hrs/load} \times 10,000 \text{ loads/year}) / (52 \text{ weeks/year}) = 1,154 \text{ hours per week (outbound)}$$

Note: The approach is similar for calculating the *average number of hours per week that inbound TRU engines operate at the facility*.



**12. Does a facility need to file a report if it owns no TRUs/TRU gen sets itself, but does control how such equipment is operated when at the facility?**

Yes, facility recordkeeping and reporting is required if:

- (a) the facility has 20 or more doors serving refrigerated space,
- (b) perishable goods are loaded or unloaded at the facility for distribution on trucks, trailers, shipping containers or rail cars equipped with TRUs,
- (c) TRUs are owned, leased or contracted for by the facility, its parent company, affiliate, or subsidiary, and,
- (d) TRUs are controlled by the facility. (See #3, above.)

**13. When are the Facility Reports due?**

Facility reports are due at ARB by January 31, 2006.

**14. How should facilities submit the Facility Reports?**

Facilities can mail a copy of the Facility Report to ARB Stationary Source Division (TRU), P.O. Box 2815, Sacramento, CA 95812-2815. Alternatively, electronic reports can be submitted through ARB's web site. (The "Facility Reports" feature is currently under development and should be available by third quarter 2005.)

**15. What enforcement mechanisms will be used to enforce the facilities requirements of this regulation?**

ARB's Enforcement Division will periodically inspect and audit facilities' records and compare them to the reports submitted to ARB.

**16. What kind of enforcement action could result from the Facility Reporting requirement?**

Failure to report or reporting of false information is a violation of state law and could result in civil penalties. Penalties vary, depending on the circumstances, but can be as high as \$35,000 per violation if the defendant knowingly and with intent to deceive, falsifies any required document (e.g. records and reports). Penalties are not excused for negligent recordkeeping and reporting.

**17. What will the information facilities report be used for?**

Staff will use the information to understand TRU activity and emissions at facilities better and evaluate how effective the TRU ATCM is at reducing public health risk near facilities.

**18. Could facilities be required to assist with enforcement by reporting TRU operator violations?**

The ATCM does not require facilities to report violators; but, facilities could voluntarily report observed violations to ARB. Such self-reporting is often viewed favorably when determining penalties.

**19. What is an intermodal facility?**

An intermodal facility is a facility involved in the movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves in changing modes. Such a facility is typically involved in loading and unloading refrigerated shipping containers and trailers to and from railcars, trucks, and ocean-going ships.

**20. Are intermodal facilities affected by the TRU ATCM?**

No, not according to the strict definition of the term "intermodal facility", since we have defined this term so it applies only if there is no handling of the perishable goods themselves in changing modes of transport. If there is handling of perishable goods, then the facility would not technically be an intermodal facility, by our definition. It's possible the ATCM could apply to facilities that consider themselves intermodal facilities, even though they unload (unstuff) perishable goods from shipping

containers and load (stuff) refrigerated trailers and rail cars for transport on land. Staff recommends the reader pay close attention to the definitions of facility and intermodal facility and which facilities are affected by the TRU ATCM.

**21. If a facility is also a TRU operator and has already begun using Alternative Technologies, how would that affect facility reporting?**

The facility should report which units are using Alternative Technologies and the type of Alternative Technologies being used. The report would include the number of hours of TRU diesel engine operation, but not the number of hours that alternative-fueled and alternative-diesel fueled engines operated. The number of hours of electric standby operation would be reported only for the refrigerated trailers used for cold storage.

**22. What is the definition of refrigerated trailer?**

"Refrigerated Trailer" means a trailer van, railcar, or shipping container equipped with a TRU or TRU gen set.

**23. We missed the early 2005 winter window that ended March 19th for the 48-hour facility recordkeeping, leaving us only December 21st to December 31, 2005, to get this done. That's our busiest time of the year. Would it be OK to do this recordkeeping in January of 2006?**

Yes, January is OK as long as you give yourself time to compile the data and submit the report on time – January 31, 2006. Just for historical information, we already delayed this report due date by one year due to the fact that final Board adoption was delayed into 2004.

**24. Our facility did not conduct the summer recordkeeping for TRU engine operating time for inbound and outbound refrigerated loads that is allowed under the abbreviated alternative recordkeeping described in the compliance assistance document titled "Frequently Asked Questions and Guidelines for Compliance with the TRU ATCM" (refer to Section III, question 10). What do we do now?**

Facilities that find themselves out of compliance with facility recordkeeping and reporting requirements should immediately notify the Air Resources Board's (ARB) Stationary Source Division (SSD) (Rod Hill at 916-327-5636).

If the facility has missed the "summer" 48-hour window that is allowed by ARB and described in the compliance assistance document titled *FAQ and Guidelines*, the facility may have collected records suitable for meeting the required recordkeeping and reporting. For example, if the facility records TRU engine hour meter readings as a normal part of their pre-trip and post-trip inspections, these may be used to calculate TRU engine run time for outbound loads. In addition, if a facility uses time stamps for inbound loads in its normal load tracking operations, these times may be used to estimate TRU engine operating time. The details of this compliance plan follow:

- For outbound loads: If under normal operating procedures, TRU engine hour meter readings are recorded on pre-trip inspection forms just prior to an outbound load leaving the yard and on post-trip inspection forms when the same refrigerated trailer returns to the yard, this data will be used as follows: The TRU engine hour meter reading for each pre-trip inspection report will be subtracted from the TRU engine hour meter reading for the previous post-trip inspection report for that refrigerated trailer. The difference between these hour meter readings will capture the TRU engine operating time associated with the temperature pull-down prior to loading the trailer and the temperature maintenance period that takes place before each outbound load is dispatched and leaves the facility.
- For inbound loads: If, under normal operating procedures, each trailer is checked in through the facility gate and a time stamp is entered into the computerized load tracking system and another time stamp is entered when this same refrigerated trailer has backed up to the loading dock, and the TRU is then shut down while unloading occurs (and little, if any, TRU engine run time occurs before the trailer leaves the facility), then this data will be used as follows: The difference

between these time stamps will be assumed to capture all of the TRU engine run time that occurs at the facility for each inbound load.

- Facility records evaluation period: Facility staff will evaluate the above-mentioned data for all outbound loads and all inbound loads for August 11, 2005 to August 12, 2005. A summer average will be calculated for both inbound and outbound loads.
- Calculation of annual average: The resulting “summer” average will then be combined with the “winter” 48-hour average to determine the annual *average TRU engine operating time per refrigerated load*. Annual averages will be calculated for both outbound and inbound refrigerated loads.
- The annual *average TRU engine operating time per refrigerated outbound load* will then be used to calculate the *average number of hours per week that outbound TRU engines operate at the facility*. See *FAQ and Guidelines, Section III, item 11*.
- The annual *average TRU engine operating time per refrigerated inbound load* will then be used to calculate the *average number of hours per week that inbound TRU engines operate at the facility*. See *FAQ and Guidelines, Section III, item 11*.
- Records for this compliance plan must be maintained and made available to ARB inspectors upon request.
- Facilities using this compliance approach must notify ARB of this fact. Contact Rod Hill at 916-327-5636

If this approach will not work for a facility because this information is not recorded, then the facility will need to confer with ARB staff and may come to agreement on a compliance plan.

The complete facility report is still due by January 31, 2006, in accordance with the TRU ATCM. If the facility report is submitted after this compliance date or is submitted incomplete, a Notice of Violation may be issued by ARB, followed by possible enforcement action.

## **25. What happens if our facility misses the compliance date for submitting the facility report?**

The complete facility report is due on January 31, 2006. If the facility report is submitted after this compliance date or is submitted incomplete, a Notice of Violation will be issued by ARB, followed by possible enforcement action. Depending on the circumstances and facts of each case, penalties may be imposed (Health and Safety Code sections 39674, 42402, or 42400.3.5). Penalties are not excused for negligent recordkeeping and reporting.

### Examples of hour meter reading cases:

The following examples are not intended to be a complete list of all possible cases, but is intended to provide guidance on data collection and use.

1. A vendor's TRU-equipped trailer enters the gate with refrigerated goods and an hour meter reading is taken. This trailer leaves empty and an hour meter reading is taken. The entry and exit hour meter readings would be used to determine the TRU engine operating time for the inbound load and this time would be used in the calculation of *average TRU engine operating time per inbound refrigerated load*.
2. A TRU-equipped trailer enters the gate with a dry-goods-only load and an hour meter reading is taken. This trailer leaves with a dry-goods-only load and an hour meter reading is taken.
  - If the trailer is not used for cold storage between entry and exit, then hour meter readings are disregarded and not used in calculation of TRU engine operating time or averages.
  - If the trailer is used for cold storage while at the facility then hour meter readings only apply to accrual of cold storage TRU engine operating time. Hour meter readings would not be used for calculation of TRU engine operating time or weekly averages.
3. A TRU-equipped trailer enters the gate with a dry-goods-only load and an hour meter reading is taken. This trailer leaves loaded with refrigerated goods and an hour meter reading is taken.
  - If the trailer is not used for cold storage between entry and exit, then the hour meter readings would be used to determine the TRU engine operating time for an outbound load and the time would be used in the calculation of *average TRU engine operating time per outbound refrigerated load*.
  - If the trailer is used for cold storage while at the facility, then an intermediate hour meter reading would be required at the end of cold storage operation. The entry hour meter reading and intermediate hour meter reading would apply to accrual of cold storage TRU engine operating time. The intermediate hour meter reading and exit hour meter reading would be used to determine the TRU engine operating time for an outbound load and the time used in the calculation of *average TRU engine operating time per outbound refrigerated load*.
4. A TRU-equipped trailer enters the gate with a refrigerated load and an hour meter reading is taken. This trailer leaves with dry goods and an hour meter reading is taken.
  - If the trailer is not used for cold storage between entry and exit, then the entry and exit hour meter readings would be used to determine the TRU engine operating time for an inbound load and the time used in the calculation of *average TRU engine operating time per inbound refrigerated load*.
  - If the trailer is used for cold storage between entry and exit then an intermediate hour meter reading would be required at the beginning of cold storage operation. The entry hour meter reading and intermediate hour meter reading would be used to determine the TRU engine operating time for an inbound load and the time used in the calculation of *average TRU engine operating time per inbound refrigerated load*. The exit hour meter reading would be disregarded.
5. A TRU-equipped trailer enters the gate with a refrigerated load and an hour meter reading is taken. All refrigerated goods are unloaded. This trailer leaves with a refrigerated load and an hour meter reading is taken.
  - If the trailer is not used for cold storage between entry and exit, then an intermediate hour meter reading would be taken when the unloading was completed, but before start-up for pre-chilling for the outbound load. The entry and intermediate readings would be used to determine the TRU engine operating time for an inbound load and the time used in the calculation of *average TRU engine operating time per inbound refrigerated load*. The intermediate and exit readings would be used to determine the TRU engine operating time for an outbound load and the time used in the calculation of *average TRU engine operating time per outbound refrigerated load*.
  - If the trailer is used for cold storage between entry and exit then an intermediate hour meter reading would be required when unloading of the inbound load was completed, but before startup for pre-chilling for cold storage. In addition, a second intermediate reading would be required at the end of cold storage operations, but before start-up for pre-chilling for the outbound load. The

entry hour meter reading and first intermediate hour meter reading would be used to determine the TRU engine operating time for an inbound load and the time used in the calculation of *average TRU engine operating time per inbound refrigerated load*. The first and second intermediate hour meter readings would be used to determine the cold storage TRU engine operating time. The second intermediate and exit readings would be used to determine the TRU engine operating time for an outbound load and the time used in the calculation of *average TRU engine operating time per outbound refrigerated load*.

## **IV. For Operators of TRUs:**

### **1. What is a TRU?**

A TRU is a refrigeration system that is powered by integral internal combustion engine, designed to control the environment of temperature sensitive products that are transported in trucks and refrigerated trailers. Refrigeration systems that are powered off the engine used to propel the vehicle are not considered TRUs (e.g. belt-driven refrigeration compressors mounted on the motor vehicle engine).

### **2. What is the definition of refrigerated trailer?**

A refrigerated trailer is a trailer van, railcar, or shipping container equipped with a TRU or TRU gen set.

### **3. What is an operator?**

An operator is any person, party or entity that operates a TRU or TRU gen set for the purposes of transporting perishable goods, excluding an employee driver and third party maintenance and repair service.

### **4. What is an owner?**

An owner is any person that legally holds the title (or its equivalent) showing ownership of a TRU or TRU gen set, excluding a bank or other financial lending institution.

### **5. What is an owner/operator?**

Use of the term owner/operator means a requirement applies to the owner and/or operator of a TRU or TRU gen set, as determined by agreement or contract between the parties if the two are separate business entities.

### **6. Does the TRU ATCM apply to TRUs based outside of California?**

Any TRU that operates in California, including those based outside of California, will need to meet California's in-use performance standards on the same schedule as California-based TRUs. Owner/operators of TRUs based outside of California may voluntarily apply for an ARB identification number at any time of their choosing.

### **7. Is there an exemption for TRUs that are rarely used?**

No. All TRUs operating in California are subject to this regulation.

### **8. What are the requirements that apply to operators of in-use TRUs?**

The TRU ATCM will require in-use TRU and TRU generator set engines that operate in California, to meet in-use performance standards that vary by horsepower range. These standards can be met by:

- a) Using an engine that meets the required engine certification value, or
- b) Equipping the engine with the required level of verified diesel emission control strategy, or
- c) Using an alternative technology.

The In-Use Performance Standards have two levels of stringency (see Tables 1 & 2) that will be phased-in over time (see Table 3). The Low-Emission TRU In-Use Performance Standards shown in Table 1 are phased in first and apply to the older TRUs. The more stringent Ultra-Low-Emission TRU In-Use Performance Standards shown in Table 2 must be met in future years.

**Table 1**  
**Low-Emission In-Use Performance Standards**

Horsepower	Engine Certification	Verified Diesel Emission Control Strategy
less than 25	0.30 gram per hp-hr	Level 2 or better (at least 50% PM reduction)
25 or greater	0.22 gram per hp-hr	Level 2 or better (at least 50% PM reduction)

**Table 2**  
**Ultra-Low Emission In-Use Performance Standards**

Horsepower	Engine Certification	Verified Diesel Emission Control Strategy
less than 25	N/A	Level 3 (at least 85% PM reduction)
25 or greater	0.02 gram per hp-hr	Level 3 (at least 85% PM reduction)

Alternative technologies can be used to meet the ultra-low-emission in-use performance standards (ULETRU) if diesel PM emissions are eliminated while at a facility, with limited exceptions (e.g. during an emergency or normal yard maneuvering). They include use of:

- a) Electric standby,
- b) Cryogenic temperature control systems or hybrid cryogenic temperature control systems,
- c) Alternative fueled engines,
- d) Alternative diesel-fueled engines,
- e) Fuel cell-powered temperature control systems, and
- f) Other systems approved by ARB to not emit diesel PM or increase public health risk near a facility.

Owners of TRUs based in California will be required to apply for an ARB identification number and submit an initial operator report to ARB that provides information about the TRUs they operate in California. Update reports and ARB identification number applications will need to be provided as TRUs are leased, purchased, or sold. The information is needed to assist in the implementation of the ATCM. Owner/operators of non-California-based TRUs and TRU generator sets may choose to voluntarily apply for an ARB identification number. The coded identification numbers include information that will reduce roadside inspection time.

## 9. When do the operator requirements go into effect?

TRUs and TRU generator sets that operate in California will be required to meet the in-use performance standards on a phased compliance schedule, based on the engine model year. Older TRU engines, for example 2001 and older and 2002 engines, will be required to come into compliance first with the low-emission TRU in-use performance standard in 2008 and 2009, respectively, and will then be subject to the more stringent ultra-low-emission TRU in-use performance standard seven-years later, in 2015 and 2016, respectively. Newer TRU engines, for example 2003 and subsequent engines, bypass the low-emission TRU in-use performance standard, but will be required to meet the ultra-low emission in-use performance standard seven years after the model year. Table 3 shows the in-use TRU and TRU generator set compliance schedule.

**Table 3**  
**In-Use TRU and TRU Generator Set Compliance Schedule**

Engine Model Year	Compliance Date for Low Emission Std	Compliance Date for Ultra-Low Emission Std
2001 or older	December 31, 2008	December 31, 2015*
2002	December 31, 2009	December 31, 2016*
2003	N/A	December 31, 2010
Future years	N/A	December 31st of the model year + 7 years

\* Early compliance (in 2005 to 2007) with the low emission in-use standard for model year 2002 or older may extend compliance date for ultra-low emission standard by up to three years.

**10. When are the operator reports due?**

Operator reports are due at ARB by January 31, 2009. Update reports must be submitted within 30 days of any changes to the reported operator information.

**11. When are the ARB Identification number applications due?**

ARB identification number applications are due at ARB on or before January 31, 2009.

**12. What information must be included in the application for the ARB identification number?**

In addition to the operator contact information (and owner contact information, if different), the following information is required for each TRU:

- a) TRU make, model, model year, and serial number.
- b) TRU engine make, model, model year, and serial number.
- c) Terminals that the TRU-equipped truck or trailer is assigned to with address and contact information.
- d) Other associated identification numbers, which may include (as applicable):
  - i. Vehicle Identification Number (VIN) of the TRU-equipped truck or trailer.
  - ii. Vehicle license number of the TRU-equipped truck or trailer.
  - iii. Railcar recording mark and car number.
  - iv. Shipping container number (for TRU-equipped shipping containers only).
  - v. Company equipment number (if any).
- e) Compliance status with in-use performance standards (TRU ATCM paragraph (e)(1)(A) requirements). If compliance is not required by application date, then indicate "Not due".
  - i. Date when compliance was achieved.
  - ii. What performance standard was met (for example, LETRU or ULETRU).
  - iii. How compliance was achieved (for example, TRU engine meets in-use standard without further modification, TRU engine replaced, describe verified diesel emission control strategy that was used).
  - iv. Identify who did the installation work (if applicable, otherwise indicate "Not Applicable").

**13. What are the recordkeeping and reporting requirements that apply to operators of in-use TRUs?**

In addition to basic contact information for the operator's responsible official, the operator report must include specific information related to California-based TRUs:

- a) List of all terminals owned or leased by the operator located within California, with address, phone number, and terminal contact name.
- b) TRU inventory information for each TRU and TRU gen set based in California that is owned or leased by the operator:
  - i. TRU make, model, model year, and serial number.
  - ii. TRU owner, and if other than operator, owner name, address, and contact.
  - iii. TRU engine make, model, model year, and serial number.
  - iv. Terminal(s) that the TRU is assigned to.



- v. ARB TRU identification number, if already issued. If the ARB identification number has not been issued or there has been a change in the other identification numbers listed below since the prior annual report, then provide the following identification numbers (as applicable):
  - i. Vehicle Identification Number.
  - ii. Vehicle license number.
  - iii. Railcar recording mark and car number.
  - iv. Shipping container number (for TRU-equipped shipping containers only).
  - v. Company equipment number.
- c) Compliance status with the in-use performance standards (TRU ATCM paragraph (e)(1)(A) of the regulation). If compliance is not required by the reporting date, then indicate "Not due".

**14. How should operators submit the ARB identification number applications and operator reports?**

Operators can mail physical applications and report to ARB Stationary Source Division, P.O. Box 2815, Sacramento, CA 95812. Alternatively, electronic applications and reports can be submitted through ARB's web site. (The "Reports" feature is currently under development.)

**15. Since the ARB identification number application and operator report asks for some of the same information, do I have to submit both of them?**

ARB will provide a report form that combines the required information when the ARB identification number application is submitted at the same time as the operator report. There will also be separate forms for those cases where an ARB identification number application is needed by itself (for example when a voluntary application is made for a non-California-based TRU) or an operator report is needed by itself (for example, when an operator needs to report that a TRU that already has an ARB identification number has been added to his fleet).

**16. What is the definition of a California-based TRU?**

A California-based TRU is a TRU-equipped truck, trailer, shipping container, or railcar that a reasonable person would find to be regularly assigned to terminals within California.

**17. What about TRUs I lease and operate in California?**

Operators are responsible for making sure that all of the TRUs they operate in California comply with the TRU ATCM. The operator may need to negotiate new contracts with the lessor in time to meet compliance dates. Since operator requirements do not begin to be phased in until the end of 2008, there is plenty of time to re-negotiate lease contracts. If you are caught operating in California with a non-compliant TRU, you, the operator will be cited for the infraction and a penalty would be assessed. The lessor would also be in violation, since lessors are prohibited from leasing or offering for lease any TRU for use in California that does not comply with the TRU ATCM.

**18. I operate TRUs in California and have terminals in California where these TRUs are assigned. What do I need to do to be in compliance?**

Operators are responsible for making sure that all of the TRUs they operate in California comply with the TRU ATCM. TRUs that operate in California must comply with the in-use performance standards shown in Tables 1 and 2 by the compliance dates shown in Table 3. (See questions 8 and 9 of this section.) TRU operators with TRUs based in California must submit an initial operator report by January 31, 2009 that covers all TRUs they operate that are based in California. The operator report must be updated within 30 days when changes to the information occur. (See questions 10 and 13 of this section.) TRU operators must apply for an ARB identification number by January 31, 2009 for all TRUs based in California. TRUs added to the TRU operators California-based operations after January 31, 2009 shall comply with the ARB identification number application process within 30 days of the unit entering the operator's control. (See questions 11 and 12 of this section.)

**19. I operate TRUs in California, but I don't have any terminals in California where TRUs are assigned. What do I need to do to be in compliance?**

Operators are responsible for making sure that all of the TRUs they operate in California comply with the TRU ATCM. TRUs that operate in California must comply with the in-use performance standards shown in Tables 1 and 2 by the compliance dates shown in Table 3. (See questions 8 and 9 of this section.) Operators of non-California-based TRUs may voluntarily apply for ARB identification numbers for TRUs that are based outside of California but operate within California during the normal course of business.

**20. What kind of enforcement mechanisms will be used to detect violations of the ATCM?**

ARB's Enforcement Division will conduct inspections at roadside inspections stations and at the TRU operators' terminals. ARB staff will also audit facilities records and compare them to the reports submitted to ARB.

**21. How will enforcement be carried out and what kind of penalties could result from the operator in-use requirements and reporting requirement?**

ARB will enforce this regulation through roadside inspections and visits to distribution facilities and TRU owner/operator terminals. Penalties will depend on the specific violation or violations. Failure to report or reporting of false information is a violation of state law and could result in civil penalties. Such penalties can vary, depending on the circumstances, but can be as high as \$35,000 per violation if the defendant knowingly and with intent to deceive, falsifies any required document (e.g. records and reports). Violations of in-use requirements could result in penalties that range from \$1,000 per day up to \$50,000 per day or one year imprisonment, or both. Penalty provisions are set forth in the Health and Safety Code sections 39674, 39675, 42400 et seq., 42402 et seq., and 42410.

**22. I think my original equipment TRU engine complies with the low-emission TRU in-use performance standard, so what do I do?**

ARB will post on the TRU Web-site, a list of TRU engine models by model year that meet the Low-Emission TRU (LETRU) in-use performance standard. Operators should check that list or check with the TRU or engine manufacturer to be sure their engine model and model year meets the LETRU in-use standard. The operator's application for an ARB identification number and operator report should indicate the correct engine model and model year. Under the information required for compliance status, indicate the TRU engine meets the LETRU in-use standard as certified.

**23. The engine manufacturer has engine family certification data and engine model certification data, which do I need to use to show compliance with the rule?**

The engine certification value that appears on the Executive Order that certifies the engine family is what will be used to determine compliance when using the Engine Certification compliance option. Question 24 deals with converting engine certification data to the 4-mode Steady State TRU Test Cycle.

**24. Could the Steady-State TRU Test Cycle for TRUs that was adopted by U.S. EPA be used to determine compliance with the engine certification part of the in-use performance standards?**

Yes, the Steady State TRU Test Cycle approved by U.S. EPA in 40 CFR Part 1039, §1039.645 could be used, but all regulated pollutants would be evaluated using this test cycle. The particulate matter (PM) emissions would have to meet the TRU ATCM in-use performance standard and the other regulated pollutant emissions would have to meet the new engine standards that applied to the engine model year. ARB will work with engine manufacturers to evaluate TRU engines with this test cycle and provide the results on the TRU web site. This would not apply to <25 hp engines that were certified with the ISO 8178-G2 Utility Lawn and Garden test cycle, since there would be missing test mode data.

**25. Are there any incentives for early compliance?**

Yes. For 2002 and older model year TRU engines that meet the LETRU in-use performance standard earlier than required, the operator may apply for a delay in the deadline for meeting the ultra-low-emission TRU (ULETRU) in-use performance standard. Early compliance is conditioned upon real emission reductions occurring. For example, in complying with the LETRU in-use performance standard, the operator must have taken an action that results in real reductions of diesel particulate matter, like installing a verified diesel emission control strategy or replacing an engine so that the PM emission rate is reduced by more than 50%. One year of early compliance with the LETRU standard earns a one year delay in the deadline for the ULETRU in-use standard. Likewise, two years early compliance earns two years delay, and three years earns three years. No more than three years delay can be earned.

**26. If I bring a TRU into compliance early with the LETRU in-use performance standard for a part of a complete calendar year, how much of a delay in the ULETRU compliance date would I be rewarded?**

Partial years of early compliance with the low-emission TRU in-use performance standard (LETRU) are rounded to the nearest year. Early compliance of 183 days or more in a calendar year (on or before July 2nd) would count for one full year of delay. Table 4 illustrates the reward possibilities.

**Table 4**  
**Early Compliance Incentives**

<b>Amount of early compliance with LETRU</b>	<b>Reward - Delay in ULETRU Compliance</b>
2-years and 183 days or greater	Three years
1-year and 183 days to 2-years and 182 days	Two years
183 days to 1-year and 182 days	One year
Less than 182 days	None

**27. Do I have to get permission for early compliance extensions?**

No, but you must apply to ARB for a delay in the ULETRU compliance date as soon as early LETRU compliance is achieved or as part of the operator reporting and ARB identification number application requirement. If you notify ARB as required, then this information will be in our records when our inspectors check to see if you are in compliance. If you haven't notified us, then you will be considered to be in violation with the ULETRU compliance deadline.

**28. What other incentives are available?**

Please check with your local air district to see if you qualify for their Carl Moyer Program funds. State guidelines now allow the use of these funds to pay for the capital (hardware) and installation costs associated with the early use of control technologies that reduce emissions of diesel PM, nitrogen oxides, and/or hydrocarbons. These emission reductions have to be surplus, meaning they must not be required by a regulation (such as the TRU ATCM). Therefore, application for these funds and early compliance, three (3) to five (5) years before the TRU ATCM compliance deadline, would be necessary to qualify under the Carl Moyer Program Guidelines.

In addition, local air districts have rules that govern the generation of emission reduction credits (ERC), which can be sold to offset the cost of compliance. Because the reductions will only be surplus until the TRU ATCM compliance deadline, the emission reductions could not be considered permanent. So, all TRU ERCs generated would have to be used in special short-term ERC trading programs. There are a number of other special considerations that need to be understood, so the operator is urged to consult with their local air district early in the process.

**29. What does it mean to say that a diesel emission control strategy has been verified?**

Before a diesel emission control strategy can be used to comply with the TRU ATCM, it must be verified by ARB. This means, in part, the diesel PM emission reductions have been confirmed by

testing, durability testing shows the strategy will continue to reduce PM emissions within the applied-for verification classification level after a minimum durability period, and the manufacturer provides the minimum warranty required by law. Alternative technologies that use alternative diesel fuels or fuel additives also must be verified.

**30. Are there any verified Level 2 diesel emission control strategies available now?**

There were no verified diesel emission control strategies (VDECS) that meet Level 2 for the TRU application, as of December 2004. However, we have been told by several manufacturers that they plan to apply for verification soon. ARB is also aware of several diesel emission control strategies that will meet the ULETRU in-use performance standard or that qualify as Alternative Technologies that are now at the demonstration phase and should be commercially available soon. In addition, there are several Alternative Technologies that do not require verification and are currently available (e.g. electric standby and cryogenic systems). Installing these systems would meet both the LETRU and ULETRU in-use performance standards. TRU owner/operators should ask the TRU manufacturers what they are offering or plan to offer operators to bring in-use TRUs into compliance. In addition, owner operators should look for opportunities to learn about VDECS that may be available from manufacturers of diesel emission control systems. Verified diesel emission control strategies (VDECS) are listed on the following web page [www.arb.ca.gov/diesel/verdev/verdev.htm](http://www.arb.ca.gov/diesel/verdev/verdev.htm). The list is updated periodically. Staff believes the in-use performance standards are reasonable and feasible since over four and a half years have been provided before the compliance deadlines begin to be phased in.

**31. What happens if there is no commercially available verified control strategy for a particular TRU engine?**

Technology reviews have been scheduled for 2007 and 2009 to assure verified diesel emission control strategies (VDECS) will be available for a broad range of TRU engines by the end of 2008, for 2001 and older model years needing to meet the low-emission TRU in-use performance standard (LETRU), and by the end of 2010 for 2003 and subsequent model years needing to meet the ultra-low-emission TRU in-use performance standard (ULETRU). If, staff's review found there would be no reliable, cost-effective VDECS by 2008, then an amendment to the TRU ATCM could be proposed that would extend the compliance deadlines. Considering that there are several diesel emission control strategies that are on the verge of being demonstrated in the field in late 2004, staff is confident there will be VDECS available by 2008.

**32. Are PM-reducing technologies proven and reliable?**

Yes. Many of these technologies have been used for years in Europe and the United States. As manufacturers apply these technologies to TRU engines, the ARB requires manufacturers to verify their products by proving emission reductions and durability and by providing a warranty.

**33. If Level 2 VDECS are not available by the time compliance is required, will the regulation allow operators to meet the LETRU engine certification level by adding a diesel oxidation catalyst?**

No. At best, a diesel oxidation catalyst (DOC) will probably only reduce diesel PM by 30%, which is only Level 1 (25% to 49% PM reduction). The engine certification value is the value that a new engine or new engine plus emission control system was certified to meet after a useful life through the new engine certification process. The engine plus DOC combination proposed by this question would have to be certified like a new engine. Currently, no program exists for certifying in-use engines with control devices and the retrofit verification procedure is not set up to certify engine/device combinations as meeting an engine certification value. New engines, however, could be certified with a DOC and then used as a replacement engine on a TRU.

- 34. Can operators use blended fuels (e.g. B20) on an engine that has a new engine certification showing it is close to meeting the Engine Certification part of the In-Use Performance Standard (but not quite), if the theoretical emissions with the blended fuel should meet the Engine Certification In Use Standard?**

This question is very similar to question 33, above, dealing with the use of a DOC, and the answer is also, "No". Staff does not believe B20 is a viable compliance option by itself because it would not reduce PM emissions by at least 50%, as required for a Level 2 VDECS. Further, to qualify under the Engine Certification part of the In-Use Performance Standards, the engine and fuel blend would have to be certified. Unfortunately, the new engine certification procedures are not intended for certifying an in-use engine and fuel blend (and neither is the verification procedure). It's possible that new engines could be certified with a B20 fuel and then used as a replacement engine on a TRU.

- 35. Can owner/operators comply with the in-use performance standards by using a VDECS or a qualifying alternative technology, without necessarily complying with the engine certification part of the in-use performance standard (e.g. the g/hp-hr part)?**

Yes. There are many ways to comply. One is to use a VDECS that meets the appropriate verification Level (e.g. Level 2 for the LETRU in-use standard and Level 3 for the ULETRU in-use standard). Another is to use one of the six alternative technologies. And, finally, use an engine that meets the required engine certification value.

- 36. If an operator had a TRU that was in early compliance with the LETRU requirements because the TRU came equipped new with an engine that complied with the Engine Certification value of the In-Use Performance Standard, can they count this as early compliance and thus get a delay in the ULETRU compliance date?**

No. The early compliance incentive is conditioned upon "real emission reductions" occurring earlier than required by the ATCM. This means the operator would have to take some early action to reduce the diesel PM emissions. Under the circumstances used in this question, no real early reductions would occur.

- 37. If an operator had a TRU that was equipped with electric standby before the LETRU compliance date, can they count this as early compliance and thus get a delay in the ULETRU compliance date?**

If the operator can show the TRU is plugged in at all times while at a distribution facility, thus eliminating the TRU diesel engine operation while at a facility, this approach would qualify as an alternative technology. As such, it would meet both LETRU and ULETRU. But to be in compliance, this approach may require that documentation be available to show TRU engine operation is eliminated at the facility, except during emergencies and normal yard maneuvering.

- 38. If I have a TRU equipped with electric standby, to qualify this "Alternative Technology" for ULETRU, do I have to make sure all facilities this TRU delivers to are equipped with a compatible electric outlet?**

The Staff Report (Chapter VII, p. VII-7) discusses staff's intent to allow electric standby (E/S)-equipped TRUs a reasonable amount of TRU engine operation at a shipping or distribution facility for ingress/egress and maneuvering. "Reasonable" means a few minutes. However, in the case where a TRU spends more time with the TRU engine running at a shipping or distribution facility while waiting for a loading dock space, or typically runs the TRU engine for longer duration while at a shipping or distribution facility for other reasons, E/S-equipped TRUs would be required to be plugged in to qualify for ULETRU compliance. It is important to note that this tolerance may be interpreted to mean that not every facility that an E/S-equipped TRU visits would need to have electric power plugs available to meet ULETRU.

As an extension of this, ULETRU may be met by E/S-equipped TRUs that make short-duration stops to unload refrigerated goods at restaurants, convenience stores, and similar facilities where it is rare

to find more than one TRU at a time, provided these short-duration emissions did not result in excessive public health risk. In this case, a reasonable amount of time for the unloading operations at a restaurant or store would probably be about 20 to 30 minutes. Staff's expectation is that engine run times in excess of that would necessitate plug-in infrastructure at the facility to qualify for ULETRU compliance. Again, this tolerance may mean that not every drop-off facility that an E/S-equipped TRU visits would need to have power plugs available.

Under the adopted TRU ATCM, the use of the E/S option to meet the low-emission TRU (LETRU) in-use performance standard is allowed, provided operations are conducted in accordance with those described above for ULETRU (amounts to meeting ULETRU early). The ATCM did not provide a way for E/S to be used to meet LETRU through operations that resulted in emission reductions equivalent to 50% or more. Staff reasoned this would create much greater challenges with respect to enforcement, compliance verification, and the uncertainty of reducing near-source public health risk to acceptable levels. These challenges are made greater by the many possible operating scenarios facilities and TRU fleets use.

**39. What is this going to cost?**

This depends on whether the original equipment TRU engine complies with the low-emission TRU in-use performance standard (LETRU) and if not, what control strategy is chosen. If the original equipment engine complies with LETRU, then only the operator reporting costs would result, which staff estimates would be \$40 to \$320 per operator for the initial operator report. Update reports would probably be a fraction of this for each update.

Costs for verified diesel emission control strategies (VDECS) will depend on market forces. For example, if there are many VDECS manufacturers competing for the available market when compliance dates are approaching, this would tend to drive the costs down. And, if many TRU operators wait to comply until the last minute, creating greater demand, this would tend to drive costs up, but economies of scale would also come into play as production numbers go up.

Cost estimates from manufacturers received during the TRU ATCM development period showed a range from \$750 to \$1800 per TRU for LETRU diesel emission control strategies (DECS) and \$2,300 to \$15,600 per TRU engine for ULETRU DECS. Cost estimates have been revised down since that time due to growing numbers of manufacturers entering the market.

**40. Does ARB charge any fees for services under this regulation (e.g. issuing the ARB identification number)?**

No.

**41. Are there any programs that might help with compliance costs?**

In some areas of the state, you may qualify for incentive funding if you comply early. Depending on the incentive program, compliance may need to be achieved up to five years early to meet the project "life" requirements. Contact your local air district representative who manages the "Carl Moyer Program" or other incentive programs in your area.

**42. What if I'm planning to retire a TRU a few years after the compliance deadline?**

Operators have the choice of complying with the TRU ATCM by using one of the many compliance options, selling non-compliant TRUs out of state, or scrapping non-compliant TRUs. The TRU ATCM provides over four and a half years before the in-use performance standards begin to be phased in. There is plenty of time to develop compliance strategies and modify capital operating plans.

**43. If I am selling or leasing TRUs in California, do these TRUs have to be in compliance with the TRU ATCM?**

Yes. Once a compliance deadline passes for a TRU model year, it is not legal to sell, offer for sale, lease, offer to lease, rent, or offer to rent a TRU for use in California that does not meet the in-use performance standards in the ATCM.

**44. Can I get a compliance extension for some TRU engines if I comply ahead of schedule for other TRUs?**

No. Staff does not believe this approach would produce verifiable emission reductions that would be equivalent to what is needed to reduce near-source health risk to acceptable levels.

**45. What if I want to volunteer to participate in demonstration projects of new technology to reduce diesel PM?**

ARB encourages fleet owners to participate in approved demonstration projects. If the TRU engines have been certified then any modification, including the addition of a PM filter, the demonstration would need an experimental permit. This is designed to prevent tampering, while allowing testing and evaluation of new emission control technology.

For TRUs and TRU generator sets, the offroad diesel engine categories that have been certified are listed below:

<b>Power Rating</b>	<b>Model Years</b>
Less than 25 hp ( less than 19 kW)	1995 and newer
25 hp (19 kW) to 49 hp (37 kW)	1999 and newer
50 hp (37 kW) to 99 hp (74 kW)	1998 and newer
100 hp (75 kW) to 174 hp (130 kW)	1997 and newer
175 hp (130 kW) to 299 hp (223 kW)	1996 and newer

Typically the diesel emission control strategy manufacturer will need to apply for an experimental permit by providing information on the modifications they plan to do, what type of tests they will perform, the engines involved (model year, make and how many) and disposition of the modified engine or part at the end of the permit.

If the manufacturer plans to market the DECS in California then they will need an anti-tampering exemption from California Vehicle Code §27156 and 38391. The procedures for obtaining an exemption for add-on and modified parts for offroad engines can be found at the following website:

<http://www.arb.ca.gov/msprog/aftermkt/aftermkt.htm#offroad>

Click on the link for *Offroad Vehicles, Engines, and Equipment*. An application form is included as one of the links.

**46. If I decide to use and alternative diesel fuel to comply, what are the requirements?**

Operators choosing to use alternative diesel fuels (e.g. 100% biodiesel (B100) or 100% Fischer-Tropsch synthetic diesel fuel (F-T100)) can comply with the ultra-low-emission TRU in-use standards (ULETRU) as an Alternative Technology, but certain requirements must be met. First and foremost, the operator must fuel the TRU exclusively with an alternative diesel fuel that meets the definition of alternative diesel fuel and has been verified by ARB as a VDECS. This means that there can be no conventional diesel fuel used in the TRU engine. Records must therefore be maintained to document the exclusive use of the chosen fuel and the hours of operation for each affected engine so that compliance can be verified. Appropriate records would be receipts or involves for the fuel and daily operating hour meter logs. Records must be kept available for a minimum of three years and must be made available to ARB inspectors upon request. In addition, a label must be permanently affixed to the fuel tank near the fill spout in plain view that identified the proper fuel that is required to achieve compliance.

**47. Can particulate filters damage TRU engines?**

TRU engine operations must be conducted in a way that conforms to the manufacturer's instructions for the retrofit device. Attention to proper use and maintenance details will help avoid the potential for engine damage. For example, ignoring a backpressure warning light may result in damage to the

retrofit device and may stop the engine. Proper training for drivers and yard personnel should greatly reduce the chance of this happening.

**48. Do diesel emission control strategies come with a warranty?**

Yes. ARB's verification procedures for TRU VDECS hardware requires a warranty, as follows:

Engine Size	Minimum Warranty Period
Under 25 hp	3 years or 1,600 hours <sup>1</sup>
At or above 25 hp and under 50 hp	4 years or 2,600 hours <sup>1</sup>
At or above 50 hp	5 years or 4,200 hours <sup>1</sup>

1. Whichever occurs first

**49. Do I have to replace a failed trap or catalyst?**

Yes. A failed device that is still in warranty must be replaced with the same device. Once the warranty has expired, the owner must review the list of verified devices and use the highest level of VDECS available for the TRU engine as a replacement, if it has been determined to be cost-effective.

**For more information about TRUs**

You can visit any of several ARB sites dealing with the TRU ATCM and reducing risk from diesel engines. The best place to start is the TRU web page at [www.arb.ca.gov/diesel/tru.htm](http://www.arb.ca.gov/diesel/tru.htm). To obtain a copy of the regulation, ARB staff report, and other related documents, visit our web site at <http://www.arb.ca.gov/regact/trude03/trude03.htm>. Additional questions may be addressed to Mr. Rod Hill of the Stationary Source Division at (916) 327-5636.

If you have a disability-related accommodation need, please go to <http://www.arb.ca.gov/html/ada/ada.htm> for assistance or contact the ADA Coordinator at (916) 323-4916. If you are a person who needs assistance in a language other than English, please contact the Bilingual Coordinator at (916) 324-5049.



## V. Hazardous Waste from DPFs and DOCs

Individuals who own, operate, or maintain diesel engines equipped with diesel particulate filters (DPFs) or diesel oxidation catalysts (DOCs) may need to manage hazardous waste generated by these devices. Information is provided in this chapter on the generation and composition of ash, hazardous waste determination requirements, an evaluation of current cleaning techniques for DPFs, and provides directions on the appropriate disposal of ash from DPFs. The guidance also addresses the proper disposal of DPFs and DOCs once they are spent.

### ASH GENERATION BY A DPF

#### 1. How is ash generated?

A diesel particulate filter physically traps and collects diesel soot from engine exhaust. While the trapped soot is burned off through filter regeneration, metal oxide “ash” particles are not burned. Over time, the unburned ash will plug the filter unless the filter is periodically cleaned.

#### 2. Why is ARB concerned about ash management?

We believe that the ash in a DPF may be properly classified as hazardous waste in California because in all of the tests we have seen, high levels of zinc, a hazardous substance, have been found. California laws, enforced by the Department of Toxic Substances Control (DTSC), require that you properly manage a hazardous waste. It is illegal to throw hazardous waste away in ordinary trash, or to dispose of hazardous waste by burying, burning, blowing it into the air, or placing it into water or down the sewer.

#### 3. How do I clean the DPF to remove ash?

Manufacturers have recommended a variety of filter cleaning techniques to remove the ash from DPFs. ARB cautions you, however, to only follow recommended techniques that are developed under the assumption that the ash is a hazardous waste. Because California laws are more stringent than laws in other states and foreign countries, some cleaning methods assume that you can throw away the ash, blow the ash into the air, or dump it into the sewer. None of the methods are legal in California, if the ash is a hazardous waste. You should contact your DPF supplier for instructions on how to properly clean the DPF.

To have the least impact on the environment, and because the ash is likely to be a hazardous waste, the ARB recommends that a filter be cleaned in an enclosure (i.e., similar to a sandblasting glove box) that exhausts through a high efficiency particulate air (HEPA) filter. The HEPA filter should also be disposed of in accordance with any hazardous waste regulations.

#### 4. ARB does not recommend the following cleaning methods, without modifications, if the ash is a hazardous waste:

Compressed Air: One cleaning method entails blowing compressed air through the filter in the direction opposite of the typical flow. If uncontrolled, however, this practice would simply blow the ash into the air/or work environment, potentially exposing workers to unsafe levels of zinc and other metal oxides. In addition, this would be an illegal disposal to the air of a hazardous waste. An acceptable modification would be to blow the compressed air into a chamber with a HEPA filter that collects all of the particulates, for eventual disposal as a hazardous waste.

High Pressure Water and Detergent: High-pressure water with or without detergent may be recommended to clean the filter. This method results in wastewater containing metal oxides, possibly being hazardous waste, that could not be discharged to the sanitary sewer or storm drains. Pouring the residue on the ground would also be prohibited. Collecting the waste water and disposing of it through a reputable hazardous waste management company would be acceptable.

Reversing the Filter: Some DPF manufacturers recommend reversing the filter periodically to more evenly distribute the collected particulate on the filter substrate. This practice will simply blow the ash into the air and is not recommended by the ARB unless the filter has been previously cleaned using an approved method.

**5. How much ash will be generated by a filter?**

The ARB has heard that the amount of ash collected from a DPF ranges from a couple of teaspoons to one cup.

**6. How can I find out if the ash is a hazardous waste?**

As a potential generator, you have two options. You can assume the ash is hazardous waste, based on your knowledge that other tests have found it to be so, or you can have your waste tested by a state-authorized testing facility. You can get a list of these facilities from the Department of Toxic Substances Control.

**7. What do I do if the ash is a hazardous waste?**

You should contact a reputable hazardous waste management company to manage your hazardous waste.

**DISPOSING OF A SPENT DPF OR DOC**

The ash inside of a spent DPF, and the catalyst material on the substrate of a DPF or DOC may make the spent DPF or DOC hazardous waste, thus proper management is critical. A spent DOC may be recyclable because of the value of the precious metals that coat the filter. Once the ash and precious metals are removed or recovered, the DPF or DOC may be managed as scrap metal. The DTSC regulates used automotive catalytic converters as scrap metal as long as the catalyst material is left in the converter shell during collection and transportation of the converters for recycling. You should contact a reputable hazardous materials management company for more information.

**FINDING OUT MORE ABOUT HAZARDOUS WASTE**

In California, the Department of Toxic Substances Control has authority over the regulation of hazardous waste. The State's hazardous waste laws are found in the Health and Safety Code, Division 20, and in the California Code of Regulations, Title 22, Division 4.5. In California, all hazardous waste must be disposed of at a facility that is permitted by the DTSC. You can get more information from DTSC by contacting the DTSC Public and Business Liaison at 1-800-728-6942, or <http://www.dtsc.ca.gov/ToxicQuestions/index.html> for a listing of the DTSC's offices statewide.

In addition, you should contact the manufacturer of your DPF or DOC for recommended cleaning and disposal guidance.